

Meeting Minutes  
Health Effects Subcommittee  
New Jersey Drinking Water Quality Institute  
October 27, 2009  
Office of Science, NJDEP, Carroll Building, Trenton, NJ

**Members present:** Leslie McGeorge, Gloria Post, Perry Cohn; David Pringle, Judith Klotz.

**Also attending:** Branden Johnson (BSDW-TA); A. Stern (Office of Science); Keith Cooper (Rutgers).

The meeting was convened at 1 PM.

### **March 30, 2009 Minutes**

Minutes were approved as written, subject to Gloria Post checking the 1,2,3-Trichloropropane document to see if there is a discussion of the EPA guidance for adjustment of slope factors for early life exposure for chemicals which cause cancer through a mutagenic mode of action, and adding a brief mention of this if not. After confirmation that specifications in the minutes for changes to the HE Subcommittee's report to the full DWQI had been made (now Appendix A of the DWQI's MCL recommendations report to the NJDEP), the Subcommittee voted to approve the subcommittee report.

### **Update of EPA and DEP activities on chemicals of interest**

#### *Dacthal and degradates*

G. Post reported that a recent BSDWTA meeting revealed that the EPA analytical method used to collect the NJ occurrence data on dacthal and degradates actually detected degradates only, while the health basis was calculated for dacthal, because there were too few health data on its degradates. NJDEP had asked the Health Effects Subcommittee to confirm its earlier recommendation that the proposed HBMCL would be protective for degradates as well, as well as consider whether any new data had appeared on degradates since its dacthal analysis had been written. P. Cohn and G. Post concurred that the dacthal-based HBMCL probably is protective for degradates as well. The Subcommittee felt this is primarily an analytical issue more appropriate for the Testing Subcommittee.

#### *Final Contaminant Candidate List 3*

G. Post distributed this list of chemicals from which EPA selects chemicals for development of Health Advisories or MCLs, although it has yet to choose to regulate any CCL chemical contaminants. She noted four substances NJDEP recommended for the list in comments submitted to USEPA on the draft CCL3 (perchlorate, PFOA, 1,2,3-TCP, MTBE), plus PFOS, appear on the list.

### *Perchlorate*

P. Cohn summarized formal comments submitted to USEPA by NJDEP in September 2009 on USEPA's supplemental request for comments, following its proposed decision in 2008 not to regulate perchlorate, and to adopt a proposed Health Reference Level of 15 ug/L. The comments were written by P. Cohn and G. Post and signed by J. Herb and S. Brubaker. These comments were that the proposed HRL would not protect infants, and the decision against regulation was based on an inappropriately high HRL which greatly reduced the population predicted to be exposed to excessive concentrations.

The Subcommittee requested that when such comments on EPA actions are copied to the chair of the DWQI, as they were in this case, that Subcommittee members also receive copies. G. Post agreed to see to this.

### *1,2,3-Trichloropropane*

P. Cohn compared the California and New Jersey numbers; although the former included both dermal and inhalation exposures, these had trivial effects on the health-based drinking water values, and the PQL was the determining factor for the MCL recommendation anyway. L. McGeorge noted that surface water quality standards cannot be adjusted for analytic or treatment limitations, so asked whether the difference between the California public health goal and New Jersey HBMCL might affect such standards. It was concluded that the HBMCL is so low in any case that the differences do not need to be taken into account.

IRIS has recently finalized its assessment of 1,2,3-TCP. Its analysis is very similar to the NJ analysis except that it used tumors of all organs instead of just forestomach. The numerical slope factor is close to NJ's. NJDEP originally nominated 1,2,3-TCP when USEPA had requested input on chemicals for IRIS review, so the Subcommittee is pleased that the EPA IRIS review has been conducted and is now final.

The IRIS review notes that 1,2,3-TCP acts through a mutagenic mode of action, and thus would be an appropriate chemical for application of the age-specific adjustment factor to be used for early life exposures for such chemicals. P. Cohn noted that neither EPA nor any other agency has yet used age-specific adjustment factors for the slope factor for this or other substances. A. Stern noted that NJDEP's Office of Science was waiting for EPA to conclude how the 2005 ASAF guidance should be used before NJ incorporates it into its risk assessments.

### *PFOA*

G. Post noted that the IRC conducts weekly literature searches for new publications on PFOA and related chemicals, which are shared with EPA toxicologists working on these chemicals. NJDEP and NJDHSS will bring their draft PFOA analysis to the Subcommittee only when it is in complete form, which will take some time.

The C8 Science Panel, a panel of three eminent epidemiologists appointed by a federal court to review data from studies of the populations in West Virginia and Ohio exposed to PFOA in drinking water, has found an association between serum PFOA levels and elevated levels of uric acid (published in Environmental Health Perspectives) and cholesterol (published in American Journal of Epidemiology).

L. McGeorge asked whether there was a rationale for New Jersey to consider perfluorinated compounds as a group, rather than one compound at a time. Fewer occurrence data are available for other perfluorinated compounds than for PFOA, although NJDEP is collecting some data now. There are limited toxicology data for perfluorinated chemicals other than PFOA and PFOS. The toxicology of PFOS has been well studied and differs in some ways from that of PFOA. Epidemiological data are currently useful only as context for quantitative analysis based on animal data. Given the relative quantity of relevant data, evaluation of PFOA alone should move forward at this time.

The Subcommittee asked that updates on PFOA status, and consideration of whether the group approach to perfluorinated compounds should be revisited, occur periodically (e.g., at each Subcommittee meeting).

### **Hexavalent Chromium**

G. Post noted that California had proposed 0.06 ppb as a health-based goal for drinking water based on a  $10^{-6}$  risk level; inhalation from shower droplets had been included in that analysis as an exposure route, but its effect was too small to change the overall result.

G. Post discussed several testing and treatment issues related to development of an MCL proposal for hexavalent chromium. NJ currently uses the federal MCL of 100 ug/L, which is for total chromium, and monitoring data is for total chromium. A MCL based on hexavalent chromium is anticipated to be lower than the current MCL, and the method for testing for hexavalent chromium is likely to be more costly than the method for total chromium. The Testing Subcommittee will need to evaluate issues such as whether total chromium might be used as a screen, with further analysis specific to hexavalent chromium if warranted by the total chromium results. She also noted that disinfection can convert trivalent to hexavalent chromium. The details related to this issue need to be researched by the Treatment Subcommittee. .

A. Stern presented the basis for New Jersey's oral cancer slope factor, which was approved by the Risk Assessment Subgroup of the NJDEP Chromium Work Group and peer-reviewed by Mark Maddaloni (EPA Region 2) and Gary Ginsberg (Connecticut DEP), and is now posted on the NJDEP website. The basis for the slope factor is the NTP chronic bioassay of hexavalent chromium in drinking water in rats and mice which was finalized in 2006. The slope factor of  $0.5 \text{ (mg/kg/day)}^{-1}$  was calculated using the approaches recommended by USEPA in its 2005 cancer risk assessment guidance. An important issue about using the results of this study for risk assessment is whether

intrinsic ability of the gastrointestinal tract and stomach to reduce hexavalent chromium to trivalent form was overwhelmed by the doses in the NTP study (the lowest concentration was about ten times higher than the highest environmental level found in California, which has high natural concentrations of chromium as well as anthropogenic sources).

NJDEP evaluated three separate data sets to assess whether the reductive capacity of the mouse stomach was overwhelmed by the doses used in the NTP study: 1) whether mouse tissues exhibited a sharp increase in tissue concentrations at a given dose, which would be expected if there is a threshold; 2) results of published human dosing studies; and 3) extrapolation of data on human gastric emptying to mice. All three analyses concluded that there was no threshold, and that hexavalent chromium's transport from the stomach to the intestine and blood was due to gastric emptying rather than the slower process of chromium reduction.

A. Stern also noted that USEPA is currently developing policies related to the issue of applying age-specific adjustment factors to calculation of the chromium slope factor. Hexavalent chromium can act as a mutagen, but the presence of diffuse hyperplasia in female mice in the NTP study implied a non-mutagenic process. NJDEP chose not to use ASAFs at this time, pending clarification from USEPA as to when they should be used.

Subcommittee members agreed it would be valuable for NJDEP to collect occurrence data on hexavalent chromium, for the Testing Subcommittee members to deal with analytic issues, and for the Treatment Subcommittee to consider the implications of the conversion of trivalent to hexavalent chromium under disinfection procedures. This will be discussed at the upcoming full DWQI meeting.

### **Next Meeting**

It was agreed that the Subcommittee would delay scheduling the next meeting until after the DWQI's October 30, 2009 meeting, when the Subcommittee's agenda and timeline would become clearer.

### **Adjournment**

The meeting was adjourned at 3:30 PM.